



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

001670

RUSH
D412-786-013
Job Sheet 174003



Part No: D412-786-013

Job Qty: 2 ea

Part Name: Fwd Hardpoint Installation



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 3/8/18

Job Tracking No:

Due Date: 3/14/18

Created By: Linda Lacelle

Type: SOLD

Description:

Note: DWG REV C IPP REV:A NEW ISSUE 12-04-27 JLM VERIFIED BY:DD

Ship Via:

DAS 10 9-89
C/HG-001 21 9-89

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	2 Ea	3/14/18	3/14/18	0.00	0.00	Start Up Stores/Pkg-1	5/	MAR 15 2018
110	Packaging	2 pcs	3/14/18	3/14/18	0.00	0.00	Packaging1-5	5/	MAR 15 2018
120	QC	2 pcs	3/14/18	3/14/18	0.00	0.00	QC4		Smb
125	DC	2 pcs	3/14/18	3/14/18	0.00	0.00	DC		
130	Packaging	2 pcs	3/14/18	3/14/18	0.00	0.00	Packaging3-2		Smp
140	QC21-FG	2 Ea	3/14/18	3/14/18	0.00	0.00	QC21		fg 029

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D3870-041 ✓	Hardpoint, Fwd LH	2 Ea (1 ea)	90-Start up Operation	5050724
D3870-042 ✓	Hardpoint, Fwd RH	2 Ea (1 ea)	90-Start up Operation	5050701
D3870-5 ✓	Mount, Fwd Upper	2 Ea (1 ea)	90-Start up Operation	5049895
D3871-1 ✓	Doubler	2 Ea (1 ea)	90-Start up Operation	5049893
D3871-2 ✓	Doubler	2 Ea (1 ea)	90-Start up Operation	5049891
MS21042L3	Nut	20 Ea (10 ea)	90-Start up Operation	5038762
MS27039-1-11	Screw	16 Ea (8 ea)	90-Start up Operation	FM138326.93
MS27039-1-12	Screw	2 Ea (1 ea)	90-Start up Operation	5050754
MS27039-1-14	Screw	2 Ea (1 ea)	90-Start up Operation	5050754
NAS1149D0332J	Washer	20 Ea (10 ea)	90-Start up Operation	5050754

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D3870-041	2	0	0
	D3870-042	2	0	0
	D3870-5	2	0	0
	D3871-1	2	0	0
	D3871-2	2	0	0
	MS21042L3	20	3,304	0
	MS27039-1-11	16	316	0
	MS27039-1-12	2	213	0
	MS27039-1-14	2	501	0
	NAS1149D0332J	20	3,602	0

QA Closed: _____ Date: _____

Work Order update only ☐

2-PART
AEROSPAC E

Container No: S051703

Part: D412-786-013

Job No: 174003

Serial No/ Batch: S051703

Revision:

Inspector:

Howesbury, ON K0A 1A0
CANADA
TEL: 1 613 632-5200
Email: sales@dentreo.com
www.dentreo.com

Date: 03/15/18

Part Specifications
Specifications could not be found.

Plex 3/8/18 2:54 PM dart.lacelle.linda

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐				



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Container View (Active) - Master Unit Containers

Master Unit No	Container No	Part No	Part Name	From Container	Current Location	Quantity
001670	S049893	D3871-1	Doubler	S049892	ST054	2
001670	S049891	D3871-2	Doubler	S049890	ST054	2
001670	S051431	MS21042L3	Nut	S038764	ST303	20
001670	S051430	MS27039-1-11	Screw	FM138326.83	ST280	16
001670	S051429	MS27039-1-12	Screw	S027544	ST280	2
001670	S051428	MS27039-1-14	Screw	F124326-4	ST280	2
001670	S051427	NAS1149D0332J	Washer	S020606	ST264	20

Note: Ad hoc query view of Part.dbo.Container where Container.Active = 1.

Plex 3/15/18 9:10 AM Dart.joly.jocelyne



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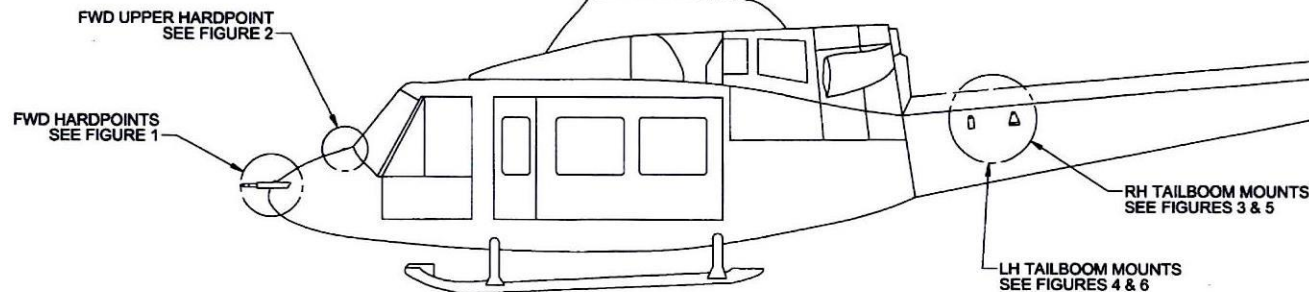
Container View (Active) - Master Unit Containers

Master Unit No	Container No	Part No	Part Name	From Container	Current Location	Quantity
001670	S049895	D3870-5	Mount, Fwd Upper	S041760	ST054	2
001670	S049893	D3871-1	Doubler	S049892	ST054	2
001670	S049891	D3871-2	Doubler	S049890	ST054	2
001670	S051431	MS21042L3	Nut	S038764	ST303	20
001670	S051430	MS27039-1-11	Screw	FM138326.83	ST280	16
001670	S051429	MS27039-1-12	Screw	S027544	ST280	2
001670	S051428	MS27039-1-14	Screw	F124326-4	ST280	2
001670	S051427	NAS1149D0332J	Washer	S020606	ST264	20

Note: Ad hoc query view of Part.dbo.Container where Container.Active = 1.

Plex 3/15/18 11:29 AM dart.quirion.sonia

REFERENCE ONLY



D412-786-011/-021 HARDPOINT KIT

QTY -011	QTY -013	QTY -015	QTY -021	QTY -025	PART NUMBER	DESCRIPTION
X					D412-786-011	HARDPOINT KIT
1	X		1		D412-786-013	FWD HARDPOINT KIT
1		X			D412-786-015	TAILBOOM MOUNT KIT
			X		D412-786-021	HARDPOINT KIT
			1	X	D412-786-025	TAILBOOM MOUNT KIT
		1			D3866-041	TAILBOOM MOUNT
		2			D3866-043	TAILBOOM MOUNT
1					D3870-041	FWD LH HARDPOINT
1					D3870-042	FWD RH HARDPOINT
1					D3870-5	FWD UPPER HARDPOINT
1					D3871-1	DOUBLER
1					D3871-2	DOUBLER
			1		D4950-041	TAILBOOM MOUNT
			2		D4950-043	TAILBOOM MOUNT
10	12		12		MS21042L3	NUT
8	12		12		MS27039-1-11	SCREW
1					MS27039-1-12	SCREW
1					MS27039-1-14	SCREW
10	24		24		NAS1149D0332J	WASHER

NOTES:

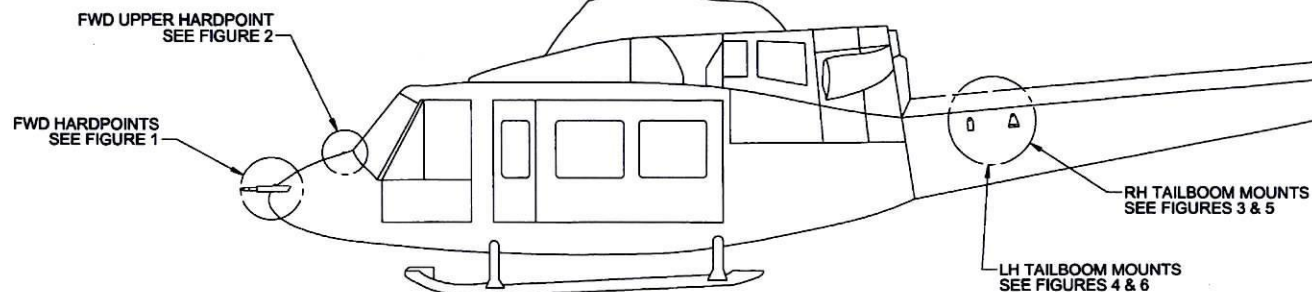
- 1) D412-786-011/-021 HARDPOINT KIT REQUIRED ON 412/412EP AIRCRAFT UTILIZING D412-695-011 BLADE FOLDING KIT WHERE WIRE STRIKE COMPATABILITY IS REQUIRED
- 2) D412-786-021 HARDPOINT KIT REQUIRED ON AIRCRAFT EQUIPPED WITH BLR TAILBOOM STRAKE KIT
- 3) TOUCH UP ALL DRILLED HOLES AND TRIMMED ALUMINUM PARTS WITH ALODINE 1201. THEN PRIMER PER THE AIRCRAFT MAINTENANCE MANUAL
- 4) TORQUE FASTENERS AS FOLLOWS: 10-32; 20-25 IN-LBS
- 5) PRIME AND PAINT HARDPOINTS TO MATCH AIRCRAFT PAINT SCHEME PER AIRCRAFT MAINTENANCE MANUAL

RELEASED
2016-09-09
2016-09-09

DESIGN	HS	DART AEROSPACE LTD	
DRAWN	AJS	HAWKESBURY, ONTARIO, CANADA	
CHECKED	MB	DRAWING NO.	REV. D
MFG. APPR.	N/A	D412-786-1	SHEET 1 OF 8
APPROVED	HS	TITLE	SCALE
DE APPR.	N/A	HARDPOINT KIT INSTALL	NTS
DATE	16.06.07	COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

APPROVED

REFERENCE ONLY



D412-786-011/-021 HARDPOINT KIT

QTY -011	QTY -013	QTY -015	QTY -021	QTY -025	PART NUMBER	DESCRIPTION
X					D412-786-011	HARDPOINT KIT
1	X		1		D412-786-013	FWD HARDPOINT KIT
1		X			D412-786-015	TAILBOOM MOUNT KIT
			X		D412-786-021	HARDPOINT KIT
			1	X	D412-786-025	TAILBOOM MOUNT KIT
		1			D3866-041	TAILBOOM MOUNT
		2			D3866-043	TAILBOOM MOUNT
1					D3870-041	FWD LH HARDPOINT
1					D3870-042	FWD RH HARDPOINT
1					D3870-5	FWD UPPER HARDPOINT
1					D3871-1	DOUBLER
1					D3871-2	DOUBLER
			1		D4950-041	TAILBOOM MOUNT
			2		D4950-043	TAILBOOM MOUNT
10	12		12		MS21042L3	NUT
8	12		12		MS27039-1-11	SCREW
1					MS27039-1-12	SCREW
1					MS27039-1-14	SCREW
10	24		24		NAS1149D0332J	WASHER

NOTES:

- 1) D412-786-011/-021 HARDPOINT KIT REQUIRED ON 412/412EP AIRCRAFT UTILIZING D412-695-011 BLADE FOLDING KIT WHERE WIRE STRIKE COMPATABILITY IS REQUIRED
- 2) D412-786-021 HARDPOINT KIT REQUIRED ON AIRCRAFT EQUIPPED WITH BLR TAILBOOM STRAKE KIT
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- 4) TORQUE FASTENERS AS FOLLOWS: 10-32; 20-25 IN-LBS
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RELEASED
2016-09-09
2016-09-09

D	SHT 1 UPDATE WORDING OF NOTE 3 FOR TRIMMED PARTS. SHT 7 ADD DETAIL E AND SECTION F-F (SEE PAR 16-501). WEIGHT AND BALANCE INFORMATION MOVED TO SHT 8.	AJS	16.06.07
C	MODIFY D3870-5 INSTALLATION INSTRUCTION. ADD TO NOTE 2, SH 3 AND CLARIFY/ CORRECT VIEW C-C (ZN A8-3, C3-3)	DB	14.04.28
B	ADD -021/-025 KITS, SHEETS 6 & 7	DB	13.10.17
A	NEW ISSUE	HS	09.01.14
REV	DESCRIPTION	BY	DATE
DESIGN	HS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS	DRAWING NO.	REV. D
CHECKED	MB	D412-786-1	SHEET 1 OF 8
MFG. APPR.	N/A	TITLE	SCALE
APPROVED	HS	HARDPOINT KIT INSTALL	NTS
DE APPR.	N/A	COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	16.06.07		

APPROVED

Change Record

PAGE 1 OF 1

Part Number: D412-786-013

Description: FWD HARDPOINT INSTALLATION

[illegible]

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					